DETAILED ACTION

This supplemental action serves to correct the previous non-final rejection.

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-4 and 6-21, in the reply filed on 3/20/07, is acknowledged. Claims 22-33 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made without traverse in the reply filed on 3/20/07.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-2, 5-7 6-16 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beall et al US Patent No. 5,830,528.

Beall et al discloses compositions, in particular, intercalates and exfoliates thereof formed by contacting a layered phyllosilicate with a functional organic monomer (intercalant monomer), having at least one hydroxyl functionality and/or an aromatic ring, to sorb or intercalate the intercalant monomer or mixtures of intercalant monomers between adjacent phyllosilicate platelets. Patentee indicates that any Swellable layered material that sufficiently sorbs the intercalant monomer to increase the interlayer spacing between adjacent phyllosilicate platelets to at least about 5 .ANG., preferably to at least about 10 .ANG may be used in the practice of the invention. Useful swellable, layered materials include phyllosilicates, such as smectite minerals.

In accordance with another embodiment of the invention, the intercalates can be exfoliated and dispersed into one or more melt-processible thermoplastic and/or thermosetting 'matrix oligomers or polymers, or mixtures thereof. Bealle et al indicates that the pentaerythritol which is used in the patented invention is commonly used in self-extinguishing, nondripping, flame-retardant compositions with a variety of polymers, including olefins, vinyl acetate, alcohols, methyl methacrylate, and urethanes. The pentaerythritol is used in conjunction with trimethylolpropane esters for solventless lacquer formulations Patentee indicates that products of the patented invention containing phyllosilicate platelets, based on polyglycerol matrix monomers, are useful in surface-active agents, plasticizers, adhesives, lubricants, antimicrobial agents, medical specialties and dietetic foods. Patentee therefor suggests the use of the intercalates, which comprise pentaerythritol and acrylic esters, in both flame retardant and/or antimierobial compositions. Vulcanizable and thermoplastic rubbers useful as matrix polymers in the practice of the invention include ethylene-propylene-diene terpolymers, and ethylene-acrylic acid copolymers. Other topically-active compounds can be included in the compositions of the invention in an amount sufficient to perform their intended function. These include, for example, zinc oxide. Beall suggests the components of applicant's claims. The selection of each of these components from the patented disclosure would have been obvious to the ordinary practitioner of this art at the time of applicant's invention. See the abstract and claims and col. 8, line 50 through col. 14, line 34. A flame retardant synergist is any substance that aids in contributing flame retardancy to the compositions. It usually enhances the efficiency of the flame retardant agent. This synergist may in some cases be another flame retardant component. The use of flame retardant synergists is conventional and well documented in the art. Since applicant's claims do

not indicate a specific synergist, any component in Beall et al affording this enhancement in flame retardancy would function as a flame retardant synergist. At col. 13, line 10 through col. 14, line 34, Beall et al states that, "pentaerythritol is used in self-extinguishing, nondripping, flame-retardant compositions with a variety of polymers, including olefins, vinyl acetate and alcohols, methyl methacrylate, and urethanes. Phosphorus compounds are added to the formulation of these materials. When exposed to fire, a thick foam is produced, forming a fire-resistant barrier". The pentaerythritol and phosphorus compounds of Beall et al would inherently function as a flame retardant synergist. Applicant's claims must be interpreted in the broadest sense. In the absence of a recitation to a specific flame retardant synergist and in the absence of an indication of unexpected results attributable to the use of a generic flame retardant synergist, this particular claim limitation of the present application is considered obvious over Beall et al.

While the particular flame retardant 1, 2 bis(tetrabromophthalimide) ethane is not specifically disclosed by the references, it is a conventional halogenated flame retardant. It is well known in the art that halogenated compounds, (particularly brominated and chlorinated compounds), provide flame retardant properties. Each of Patel et al and Beall et al indicate that flame retardants may be used. Applicant has provided for nothing of an unexpected nature by indicating a specific and conventional flame retardant component for use in the invention.

While this particular antimicrobial agent which comprises a salt complex of pyrithione is not specifically disclosed by the references, it is a conventional antimicrobial agent. Beall et al and Patel et al are specifically directed towards achieving antimicrobial properties. Applicant has

provided no indication that he is achieving a property of an unexpected nature by using a conventional antimicrobial agent.

2. Claims 1-2, 5-7 and 6-16 and 1 8-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over. Patel et al, US Patent No. 6,638,993.

Patel et al discloses non-silicone vulcanized rubber articles made from at least a majority by weight of ethylene-propylene-diene modified (terpolymer) rubber (such as, without limitation, EPDM and/or NBR) that further include silver-based compounds to provide highly desirable long-term antimicrobial characteristics within the cured rubber articles. An object of the invention is to provide a vulcanized EPDMand/or NBR rubber-containing article, comprising filler components and plasticizers (such as silica~ metal salts, organic salts, calcium carbonate, metal oxides, ~ and oils). The colored vulcanized rubber-containing article of the invention comprise at least one non-discoloring silver ion control release additive, such as those selected selected from the group consisting of fillers (such as calcium carbonate, china or calcined cla.v, silane-coated or mixed bivalent metal silicates, aluminum trihydrate, and any mixtures thereof), at least one coloring agent to provide a color to the article other than black, and, optionally and at least one plasticizer (e.g., oils such as phthalate oils and paraffinic oils). Additionally, this invention encompasses a method of producing such a colored vulcanized. Additionally, generally and preferably, certain fillers and, supplementally, oils, (such as bivalent silicates, silane-coated or mixed silica, zinc oxide, clays, aluminum trihydrate salts, calcium carbonate, and other types that do not discolor silver antimicrobial-containing EPDM and/or NBR, as merely preferred examples, rubber formulations) are incorporated into the compositions to provide both flexural modulus and structura! integrity to vulcanized rubber articles. The preferred silver-based ion

exchange material is an antimicrobial silver zirconium phosphate. Patel et al provides for accelerators and flame retardants. See col. 9, lines 38-45. Since applicant's claims do not indicate a specific synergist, any component in Patel et al affording enhancement in flame retardancy would function as a flame retardant synergist. Patel et al is considered to provide incentive for the broadly claimed flame retardant synergist of applicant's claims.

While the particular flame retardant 1, 2 bis(tetrabromophthalimide) ethane is not specifically disclosed by the references, it is a conventional halogenated flame retardant. It is well known in the art that halogenated compounds, (particularly brominated and chlorinated compounds), provide flame retardant properties. Each of Patel et al and Beall et al indicate that flame retardants may be used. Applicant has provided for nothing of an unexpected nature by indicating a specific and conventional flame retardant component for use in the invention.

While this particular antimicrobial agent which comprises a salt complex of pyrithione is not specifically disclosed by the references, it is a conventional antimicrobial agent. Beall et al and Patel et al are specifically directed towards achieving antimicrobial properties. Applicant has provided no indication that he is achieving a property of an unexpected nature by using a conventional antimicrobial agent.

Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patel *et al* (US Patent No 6,638,993) in view of Dekkers *et al* (US Patent No 5,147,920).

Patel et al is discussed above. With respect to claim 8, Patel teaches that peroxides can be part of the composition (see abstract and various teachings in the spec). With respect to the amount of the terpolymer, Patel teaches that the rubber component is present in an amount of

about 10 to 1000 parts of the entire composition (col. 6, lines 10-25). The amount of antimicrobial agent may range between 0.1 to 10% (col. 7, lines 20-25) and the amount of flame retardant may range 0.1 to 10 pphr (parts per hundred of resin). See col. 9, lines 40-45. See also the various formulations at columns 11, 12 and 13. Clearly the relative amounts of each component disclosed by Patel fall well within the claimed ranges of the respective components. Patel fails to teach use of 1, 2 bis(tetrabromophthalimide) ethane as a flame retardant as required by instant claim 3. In that respect, Dekkers *et al* relate to a polymer composition comprising glass fibres and flame retardants. Exemplary known flame retardants include 1,2 bis(tetrabromophthalimide) ethane. See col. 3, lines 50-51. Dekkers teaches that other flame retardants provide less tracking resistance. See col. 2, lines 57-64. Thus, it would have been obvious to use the 1,2 bis(tetrabromophthalimide) ethane of Dekkers in the composition of Patel as a flame retardant.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patel *et al* (US Patent No 6,638,993) in view of Yao (US Patent No 6,551,608).

Patel et al is discussed above. Patel does not teach the use of pyrithione as an antimicrobial agent. Yao teaches porous plastic materials which comprise antiviral or antimicrobial properties. See col. 1, lines 65-67. The plastic materials may include ethylene-propylene-diene polymers (column 2, lines 10-20). Yao at col. 9, lines 1-5, teaches that the pyrithione salt complex can be used as an antimicrobial agent. Since Yao teaches to use pyrithione salt complex as an antimicrobial agent, it would have been obvious to one of ordinary skill in the art use such antimicrobial agent in the terpolymer composition of Patel with a reasonable expectation that it would function as taught by Yao.

Claims 11, 12, 14, 15, 17, and 19-21 are rejected under 35 USC 103(a) as being unpatentable over Patel et al (US Patent No 6,638,993) in view of Anderson (US Patent No 4,082,725) and further in view of Dekkers (US Patent No 5,147,920) and still further in view of Hirano et al (US Patent no 5,871,883).

Patel et al is discussed above. With respect to claim 11, Patel teaches that plasticizers can be used as part of the compositions (see the abstract). Exemplary plasticizers include paraffinic oils. See col.3, lines 50-55. The skilled person in this art will appreciate that paraffinic oils are hydrocarbon oils. Patel fails to teach the use of antioxidants and flame retardant synergists as part of his composition. Note that applicant in his specification has stated that flame retardant synergists (i.e., flame enhancing agents) include antimony compounds such as antimony trioxide. See page 4, lines 12-18. The reference of Anderson teaches a flame retardant plastic composition that may contain an enhancing agent which enhances the flame retardancy of the flame retardant. Exemplary enhancing agents include antimony trioxide. See col. 4, lines 22-34. Anderson also teaches that the plastic composition may comprise antioxidants. See col. 4, lines 45-50. Regarding claim 12, neither Patel nor Anderson teaches a flame retardant which comprises 1,2 bis(tetrabromophthalimide) ethane. As pointed out above, Dekkers *et al* relates to a polymer composition comprising glass fibres and flame retardants. Exemplary known flame retardants include 1,2 bis(tetrabromophthalimide) ethane. See col. 3, lines 50-51. Because it was known to use 1,2 bis(tetrabromophthalimide) ethane as a flame retardant, it would have been obvious to use the flame retardant enhancing agent such as antimony trioxide in the composition of Patel so as to enhance Patel's flame retardants. Since Anderson teaches the use of antioxidants as part of his flame retardant plastic composition, it would have been obvious for one skilled in the art to

use antioxidants in the Patel composition. For claim 15, Patel teaches the use of silica and/or clay as part of his composition. See col. 3, lines 15-25. Regarding claim 17, Patel teaches that peroxides can be part of the composition (abstract). With respect to claim 19, Patel teaches that zinc oxide can be a filler in his composition. See col. 4, lines 51-55. Regarding claims 20 and 21, it was known in the prior art that carbon black can be used as a laser beam absorber. See Hirano et al at col. 1, lines 55-61. Patel also teaches the use of carbon black in his composition. See col. 5, lines 55-58. Clearly then, Patel's carbon black would inherently function as a laser beam absorber and hence as an energy beam absorber.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patel *et al* (US Pat. No 6,638,993) in view of Anderson (US Pat. No 4,082,725) and further in view of Yao (US Pat. No 6,551,608).

Patel et al is discussed above. With respect to claim 13, neither Patel nor Anderson teaches the use of a salt complex of pyrithione as an antimicrobial agent. Note however, that it was well known in the prior art to use such salt complex of pyrithione as an antimicrobial agent. See Yao at column 9, lines 1-5. As such, the use of the salt complex of pyrithione as an antimicrobial agent in the composition of Patel would have been obvious.

Claims 16 and 18 are rejected under 35 USC 103(a) as being unpatentable over Patel et al (US Pat. No 6,638,993) in view of Anderson (US Pat. No 4,082,725) and further in view of Kozima et al (US Pat. No 5,859,076).

Patel et al is discussed above. Neither Patel nor Anderson teaches the use of a silane coupling agent of claim 16. Kozima however, teaches open cell foamed articles including silane

grafted polyolefins articles. The polyolefins can be a terpolymer such as ethylene propylene diene (col/ 2, lines 5-15). Regarding claim 18, Kozima teaches that the polyolefins may also contain acrylic components. See col. 6, lines 45-55. Kozima further teaches that the foamed material may contain antioxidants, pigments, colorants and antimicrobial agents. See col.2, line 66-col.3, line 10. Kozima further teaches that the silane can include vinyl silane, a known silane coupling agent. Compare applicant's specification at page 7, lines 18-20. Kozima further teaches that his foamed article has good crushing properties (abstract). The silane based article of Kozima also has long expansion cycles as well as good dimensional stability. See column 8, lines 55-65.

Because Kozima teaches a composition which has antimicrobial properties as well as coupling agents, it would have been obvious to use the silane coupling agent of Kozima in the composition of Patel so as to obtain desirable properties such as good crushing properties and good dimensional stability. It would also have been obvious to use acrylic based polymers in the composition of Patel. The claimed invention, taken as a whole, would have been obvious in view of the prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kriellion A. Sanders whose telephone number is 571-272-1122. The examiner can normally be reached on Monday through Thursday 8:30am-7:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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